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內文：

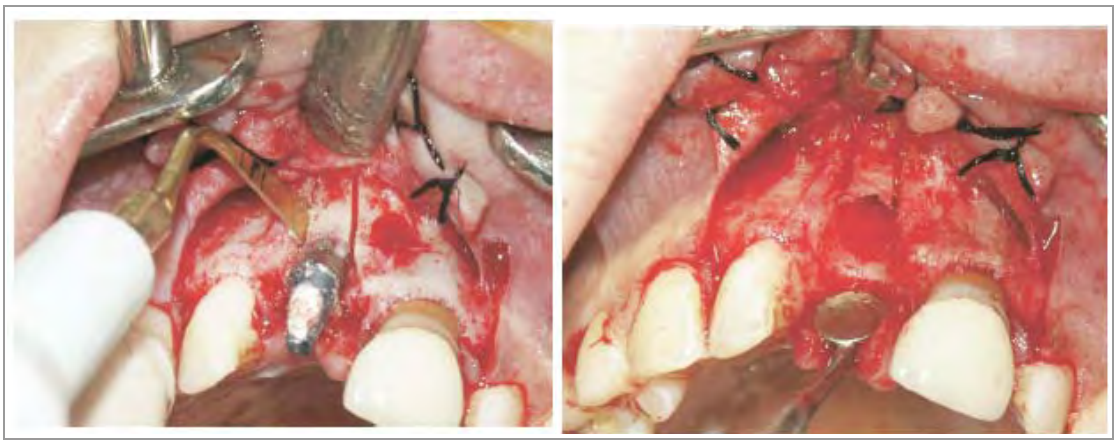
Introduction

- The **ultrasonic lancet** is able to
  - cut out hard tissue with precision
  - facilitate the cleavage of solid interfaces
- Particular indications
  1、 nontraumatic removal of osseointegrated implants
  2、 chin bone harvesting
  3、 retromolar bone harvesting
  4、 inferior alveolar nerve lateralization
- This study presents these applications in detail and discusses their advantages and disadvantages compared with former techniques.

Ultrasonic Lancet and Removal of Osseointegrated Implants

- An osseointegrated implant
  - resist in torsion to forces of greater than 90 N
  - removal
    - great difficulties in breaking the bone/implant interface
    - high risk of fracture of the peri-implant osseous walls
- Osseointegrated but ectopic implants
  - necessary to eliminate → prosthetically unusable or major esthetic damage
- Ultrasonic lancet
  - make 2 thin vestibular or lingual trenches on each side of the implant
    → give flexibility to the osseous wall
    → ultrasonic vibrations will favor the cleavage of the solid bone/implant interface
- The risk of fracture of the peri-implant osseous walls remains important, particularly during the extraction phase itself, because this phase requires applying consequent twisting forces on the implant and on the alveolar

bone.



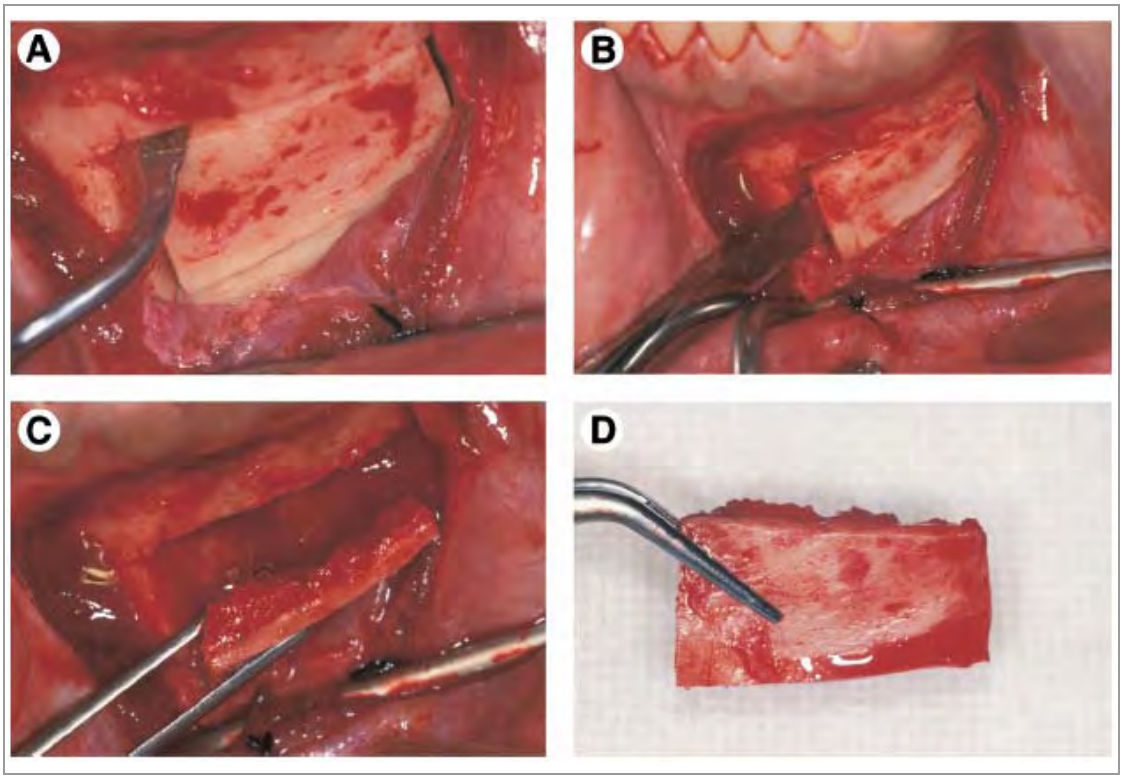
Ultrasonic Lancet and Chin Bone Harvesting

Conventional instrument

- For a conscious patient, there is a particularly unpleasant moment when the practitioner, after having cut the graft's limits, uses the bone chisel to remove the bone fragment from the mandibular body.
- Every hammer blow echoes violently into the patient's head, and after the intervention, this traumatic recollection can darken all the practitioner's efforts in decreasing the intraoperative sufferings.

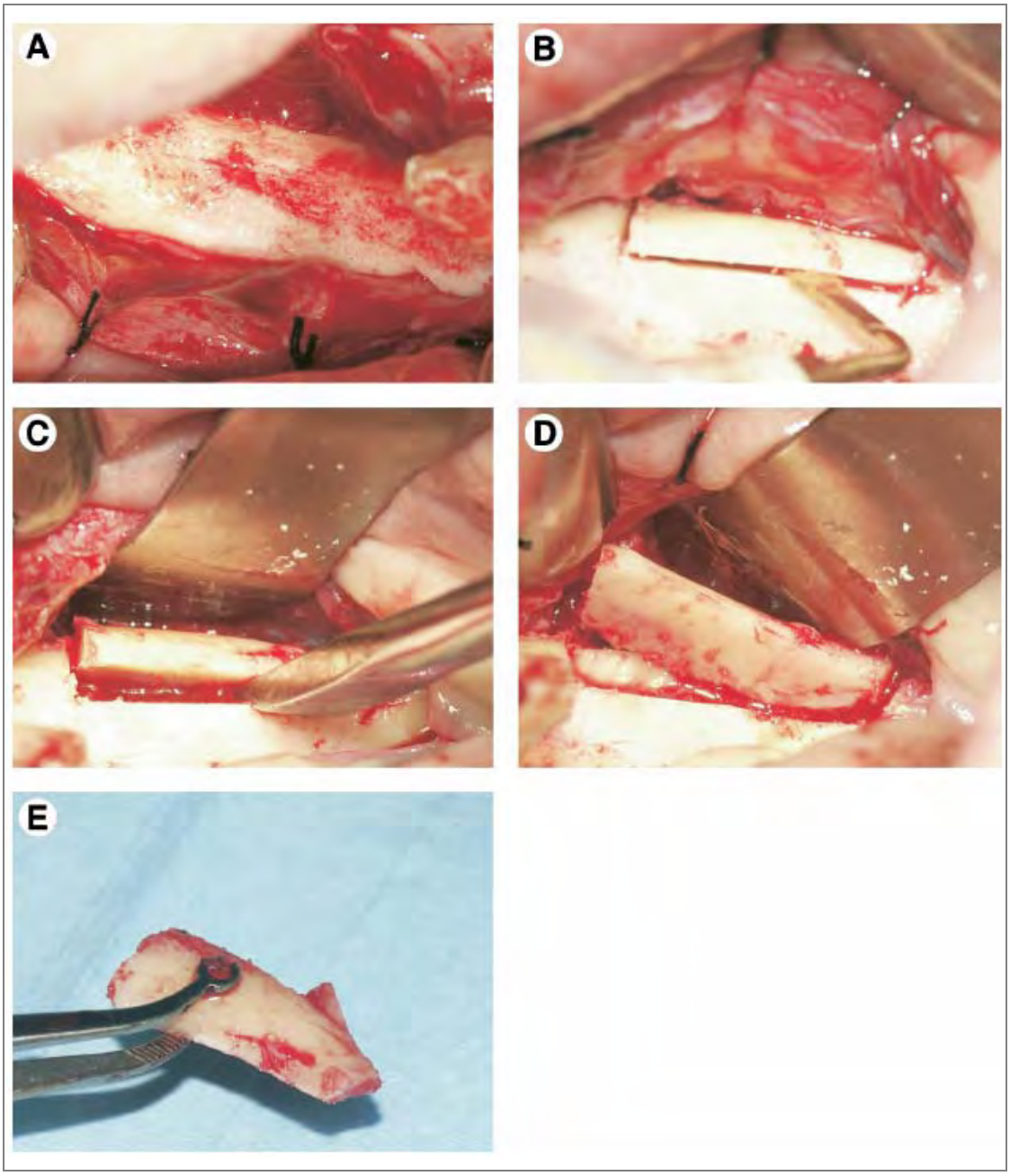
Ultrasonic lancet

- Make the graft demarcation – thinner than bone drill, deeper than cutting disc
- Ultrasound vibration transmission through the graft induces, little by little, a fracture of the solid interface between the cortical plate and the underlying medullar tissues.
- Provides security to the practitioner in regard to patient comfort and the prognosis of his intervention
- By decreasing the number and the intensity of the chisel strokes needed for the cleavage of the cortical plate, the risk for fracture is reduced
- Even if the bone chisel is needed on occasion to finish the separation of the graft, the impacts that are made are very moderate



Ultrasonic Lancet and Retromolar Bone Harvesting

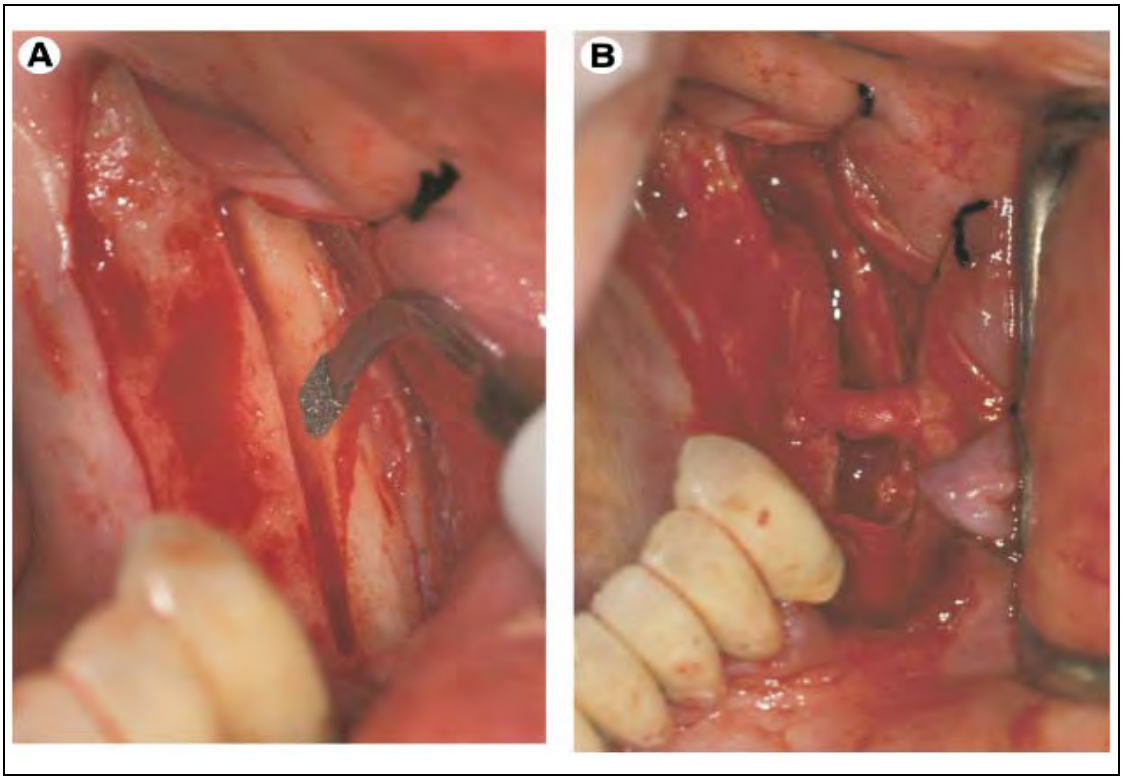
- Retromolar bone
  - situated on the mandibular body in the mandibular branch continuation
  - more difficult to access than the chin
  - collection of longer and thicker fragments than the chin
  - situated on the force convergence area of the mandible,
    → easily reconstitute itself under the influence of mechanical stimuli
- The problem of retromolar harvesting is similar to chin harvesting
- Ultrasonic lancet
  - offers the certainty of avoiding damage to nearby tissues



Ultrasonic Lancet and Inferior Alveolar Nerve Lateralization

- Main difficulty of the lateralization of the inferior alveolar nerve
  - initial release of the nerve
    → necessary to decorticate it, without any damage, up to the mental foramen
- This bone foramen must be eliminated to
  - avoid risk of constriction of the nervous pedicle during the lateralization of the nerve

- Ultrasonic lancet
  - allows a secure bone cut
  - easy access to and release of the nerve
  - cutting power only at the end of its insert
    → used in inaccessible sectors without damaging the neighboring tissues
  - weak cutting power → risk for accidental damage is reduced
- Ultrasonic vibrations
  - make the cortical plate cleavage easier from the soft structures that are underneath
- The microabrasive oscillations of these inserts will
  - provide more precise information to the surgeon about the hardness of the encountered tissues than a turbine or a hand-piece
  - reduce errors of the estimated cutting depth



Discussion

- The main disadvantage for the ultrasonic lancet in bone harvesting
  - inefficacy and fragility when facing very dense bone tissues
- The major part of our harvesting comes from very cortical sectors
  → the main indication of the ultrasonic lancet is more or less its main contraindication
- To adapt to this lack of efficacy in front of hard bone tissues

- Progressing more slowly and without force, the most cortical bones always weaken

- Despite this inadequacy, the ultrasonic lancet remains the best instrument available to realize bone harvesting, even for very dense cortical bones.

Conclusion

- The ultrasonic lancet belongs to the category of tools that transform delicate operations into easy and perfectly mastered procedures.